DECWARE

IS A TRADEMARK OF

High Fidelity Engineering Co.

STEREO POWER AMPLIFIER

SE84C
OWNERS MANUAL

Decware High Fidelity Engineering Co. 75 S. Riverview Dr. East Peoria , IL 61611 (309) 822 5255

lightning flash with arrowhead, within an equilateral triangle, is intended to alert the user to the presence of uninstalled "dangerous voltage" within the product's enclosure that may be of risk of electric shock to persons.

The exclamation point within an equilateral triangle is intended to alert the user to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the appliance.

AVIS RISQUÉ DE CHOC ELECTRIC-NE PASOUVRIR.

WARNING- TO REDUCE RISK OF FIRE OR ELECTRICAL SHOCK, DO NOT EXPOSE THIS EQUIPMENT TO RAIN OR MOISTURE.

NO USER-SERVICEABLE PARTS INSIDE. REFER SERVICING TO QUALIFIED PERSONNEL.

To prevent the risk of electrical shock, do not remove cover or bottom. No user serviceable parts inside.

IMPORTANT SAFETY INSTRUCTIONS!

PLEASE READ THEM BEFORE OPERATING THIS EQUIPMENT.

1 Read these instructions.
2 Keep these instructions.
3 Heed all warnings.
4 Follow all instructions.
5 Do not use this apparatus near water.
6 Clean only with a dry cloth.
7 Do not set things on top of apparatus.
8 Install in accordance with manufacturers instructions.
9 Do not install near any heat sources such as radiators, heat registers, stoves, or other apparatus (including amplifiers) that produce heat.
10 Do not defeat the safety purpose of the polarized or grounding-type plug. A polarized plug has to blades with one wider then the other. A grounding type plug has to blades and a third grounding prong. The wide blade or the third grounding prong are provided for your safety. If the provided plug does not fit into your outlet, consult an electrician for replacement of the obsolete outlet.
11 Protect the power cord from being walked on or pinched particularly at plugs, convenience receptacles, and the point where they exit from the apparatus.
12 Only use attachments/accessories specified by the manufacturer.
13 Do not attempt to move this apparatus until after it has been turned of and cooled down to room temperature.
14 Unplug this apparatus during lighting storms or when unused for long periods of time.
15 Refer all servicing ot qualified service personnel. Servicing is required when the apparatus has been damaged in any way, such as power-supply cord or plug is damaged, liquid has been spilled or objects have fallen into the apparatus, the apparatus has been exposed to rain or moisture, does not operate normally, or has been dropped.
16 Do not expose this equipment to dripping or splashing and ensure that no objects filled with liquid, such as vases, are placed on or near the equipment.
17 To completely disconnect this equipment from the A.C. mains, disconnect the power supply cord from the A.C. receptacle.
18 The mains plug of the power supply cord shall remain readily operable.
19 Never touch a vacuum tube while it is operating. Some can reach temperatures of almost 400 degrees F.
20 Turn apparatus off when not in use.

Thank You

By purchasing the Zen Triode amplifier you have illustrated a desire to rise past the normal hi-end hype and own a truly exceptional piece. It is a product based on the old school way of doing things when it was fashionable to push quality to an art form. Your amplifier was hand-built by the very best artisans who have perfected the craft through the experience of building well over one thousand amplifiers, each one at a time.

Please Take a Moment

The serial number and date of your amplifier are recorded on the bottom of the amplifier. These are important to keep on the amplifier for identification purposes. You may need them for insurance claim or future service. Please use the spaces below to record this information for safe keeping.

Serial Number: _____

Purchase Date: _____

Model Number: _____

Technical Assistance

You can reach technical assistance by simply contacting Decware directly. You can also e-mail us directly from our web site at www.decware.com Please feel free express any questions you may have about your purchase or how it can be best utilized in your present system. You can also find help online in our support forums on decware.com

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Important Information

1 ***Caution: To prevent electrical shock make sure that the AC POWER CORD IS NOT CONNECTED TO THE SE84C when inserting or removing Vacuum Tubes, as there are hazardous voltages present at the pins of the Tube Sockets.***

2 *When Vacuum Tubes are installed or removed make sure to seat them properly in the tube sockets. A properly installed Vacuum tube should seat all the way down making the tube pins no longer visible.*

3 *If the SE84ZS has been on , understand that the tubes will take time to cool off before they can be safely removed.*

4 *For additional connection information, refer to the owner's manual for any components connected to the SE84ZS.*

5 *It is very important that loudspeaker cables of adequate size be used, so that there will be a minimum power loss. The size is specified in Gauge numbers or AWG (American Wire Gauge). The smaller the Gauge number, the larger the wire size.*

6 *Connection Terminals will accept up to a 8 AWG wire size:*

If your loudspeaker cables are 50 feet (38.1m) or less, use at least 14 Gauge. If your loudspeakers are 100 feet (76.2m) or less, use at least 12 Gauge. NOTE: Beyond power loss, there can be other sonic reasons to employ larger Gauges.

DECWARE makes a speaker cable guaranteed to be in the top 5% sonically regardless of price, called ZENSTYX. It is often recommended with this amplifier even in shorter lengths of 10 feet.

Connector Information

The SE84C is fitted with what are called "single ended" RCA type input connectors. These are located along the rear of the amplifier. Another popular type of connector is known as XLR or "balanced" inputs. The SE84C does not use balanced inputs because contrary to popular belief they do not automatically sound better. Balancing is a system wide concept developed for pro audio to reduce noise an facilitate long cable runs of in many cases over 100 feet.

The speaker binding posts are designed to facilitate the use of bare wire by inserting it in the horizontal hole and tightening the post down onto it. They can also accept a spade connector with the same tightening technique. In addition there are vertical holes visible in the top of each binding post that are designed to accept banana jacks.

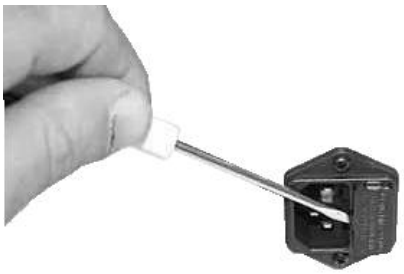
BOTH INPUT AND OUTPUT CONNECTORS are color banded to indicate left / right or positive / negative. The RED is POSITIVE or RIGHT CHANNEL.

Fuse location / Information

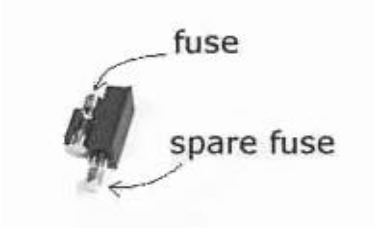
The fuse is integrated into the IEC power cord connector at the back of the SE84C.

Use a
GMA (20mm x 5mm) 250 volt
3 amp fuse only.

TO ACCESS FUSE, REMOVE POWER CORD and PRY FUSE HOLDER LOOSE WITH SMALL SCREWDRIVER AS SHOWN.



The fuse holder contains a spare fuse as shown. To reinstall just snap the new fuse in place and snap the fuse holder back into the IEC connector.



WARNING

NEVER INSTALL A FUSE WITH A HIGHER RATING THEN SPECIFIED. NEVER ATTEMPT TO BYPASS THE FUSE OR DEFEAT ITS INTENDED PURPOSE !

OUTPUT TUBE WARNING

The SE84C is designed to use either EL84 output tubes or SV83 output tubes. No adjustments are needed when switching from one to the other. Of the type SV83 tubes carrying the Svetlana name there is one batch known to be questionable and ARE NOT RECOMMENDED for use in this amplifier.

The tube on the left is an acceptable SV83 output tube for use in this amplifier. The tube on the right with the smaller logo is NOT acceptable for use in this amplifier.

OTHER OUTPUT TUBE INFORMATION

This amp ships with the milspec version of the SV83 output tubes.

This ultra high quality tube features a 5000 hour rating, and is known only by its REAL Russian numbers of:

◊ 6P15P-EV or 6n15n-EB

If there is no extension of -EV or -EB it is not high grade version and likely a standard SV83.

The number SV83 came from an American marketing company who purchased a large stock of the non-military grade of these tubes and then made up the trademark of Svetlana and the "S" logo visible in the picture above.

These tubes whether milspec or non-milspec are because of their small size and intended use in video applications are superior sonically to the popular 300B, 2A3, 45's because they lack the heavy signature and are considerably faster. The bandwidth of these tubes is far greater then that specified for audio tubes.

The SV83's and the 6P15P-EV tubes all came from a single tube factory in Russia and were manufactured in the 1980's.

Decware was introduced to these tubes in 1995 by Svetlana's Eric Barbour who was convinced they would make a nice alternative to the EL84's. Steve Deckert, owner of Decware and designer of this amplifier was the only one in the industry smart enough and with the foresight to purchase and use these tubes. To date we are the only manufacture to use this Vacuum Tube in production high fidelity amplifiers.

Now that the company Svetlana is gone, Decware purchases these tubes directly from Russia and with only original factory markings on the glass. Always buy 6P15P-EV replacement tubes directly from Decware. You may also enjoy EL84/6BQ5 tubes of which there is a huge variety of, from any reputable tube supplier.

TUBE LIFE

Output tube life is rated at either 3000 or 5000 hours depending on the type tube used.

Rectifier tubes can easily last the life of the amplifier.

Input tubes will vary from tube to tube and should be checked yearly.

The easiest way to check input or output tubes is to replace them with a known new set and compare both sound quality and power output of the amplifier. If you hear very little difference, the tubes are still good.

INPUT TUBE INFORMATION

The SE84C is designed to use your choice of three different input (*or signal*) tubes.

6N1P (*a Russian tube from the same factory*

The sound is typically warm with good balance.

that makes the SV83 and 6P15P-EV)

6DJ8 (*a popular low noise tube both available in current production by numerous manufacturers*

The sound is more airy and detailed, less bass.

and in N.O.S.)

6922 (*a popular variant of the 6DJ8 also available by a wide variety of manufacturers and in N.O.S.*)

The sound is typically more dynamic and detailed.

RECTIFIER TUBE INFORMATION

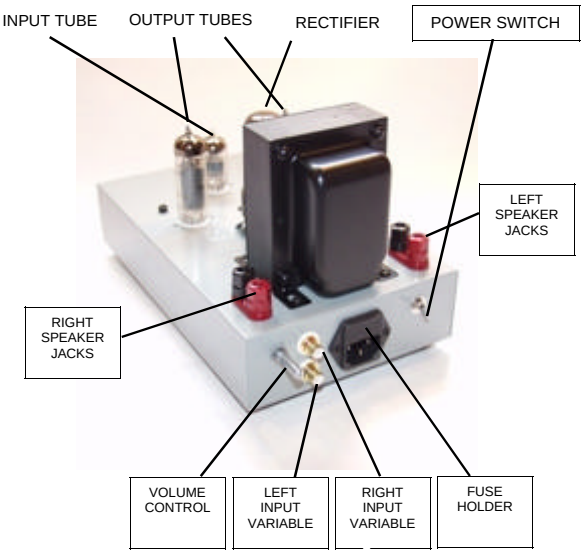
The SE84C is designed around the 5Y3GT rectifier tube. It is however, compatible with the following alternatives - each having a subtle effect on the overall sound characteristics of the amp.

- ◊ 5U4
- ◊ 5AR4
- ◊ GZ34
- ◊ 274B

The different ratings and efficiencies of these rectifiers will effect the operating voltage points throughout the amplifier which is why they can have an effect on the sound. You will find that even different brands of the same tube will sound different. This is true with any vacuum tube.

WHERE EVERYTHING GOES

Below are the tube locations, input jack configuration and power switch location.
The input switch, one for each channel, changes between direct and variable inputs. It always points to the active jack. For example on the left side of the amp, moving the input switch to the right would select the variable input for that channel. Variable input means the signal goes through the volume control located at the front of the SE84C.



INTRODUCTION

You now own one of the best SET amplifiers in the world! Unlike the stereotypes associated with single ended triode designs, the SE84C has many unique features that set it apart from the rest. It's point-to-point construction, lack of circuit boards, and signal path consisting of only a single capacitor and two resistors means nothing sold today is more transparent or honest. Of course almost everything sold today claims to be sonically transparent and absolutely accurate, but when compared side by side to the Zen Triode SE84C, it usually isn't.

PERFORMANCE FEATURES

- **Power Output**

The SE84C power output sits in the perfect spot on the line of fidelity vs. power with respect to amplifier design. It is rated at 2.3 watts into an 4 ohm resistive load with no visible or audible distortion. What makes it deceptive is its ability to drive complex speaker loads down to almost a dead short with even more power. For example, this amp has driven a pair of Klipsch horns, a pair of JBL control 10's and a pair of JBL studio monitors, each between 6 and 8 ohm speakers - all at the same time on each channel. The speakers were wired in parallel. Besides the ability to remain stable at these insane impedance's, the SE84C also sounds good when doing it.

- **Output Transformer Design**

You may have noticed that output transformers used in single ended amplifiers are up to 3 times more expensive then those used in push-pull applications. This is in part due to the air gap that must be integrated into the transformer. You can spend as much on a single output transformer as you paid for this amplifier (*yes, they exist*) , take it completely apart and find no difference in quality between it and the transformers used in your SE84C. We understood from the beginning that output transformer design and quality are what separate good sounding tube amps from great sounding ones. The SE84C has transformers that were custom designed specifically for it, and are made by Decware in the USA.

- **Gold Plated Connectors and Sockets**

Gold plated Input Jacks and Output Binding Posts provide trouble free connections. Ceramic tube sockets with gold plated contacts provide protection from atmospheric contamination.

- **Steel Powder coated Chassis**

The SE84C is built on a custom steel chassis with no vents ensuring the inside of the amp remains dust free and clean as the day it was built over the life of the amp. Hardwood bases are available (model B610) shown above.

- **High Reliability - Low Maintenance**

With an oversized power supply and the highest grade of capacitors the SE84C has less then 0.5mv of sag in the high voltage supply when the amp is at full power and clipping. This means the power supply is never taxed and should therefor last for many decades. In addition, the self-biasing design besides sounding best offers easy tube changes with no adjustments or re-biasing needed. These are just some of the reasons why we can offer a Lifetime Warranty with this product.

- **Tube rectification**

This offers two distinct advantages over the more common solid state rectification. First is reliability. Solid state rectifiers when used at these high voltages (600 volts) are susceptible to voltage spikes and even static electricity. That means your amplifier would need repair likely more then once during it's lifetime. Using a tube rectifier means that you can easily change it yourself if ever there was a problem. Tube rectification also sounds different then solid state. And contrary to popular belief, the tube rectification actually has far superior bass. It's tighter, more dimensional, and less artificial sounding.

DIMENSIONS

The SE84C amplifier is 6 inches wide by 11.50 inches deep with a height of 6.5 inches.

PLACEMENT

We recommend keeping a 2 inch spacing on all sides and at least 6 to 10 inches of space above the amplifier.

Avoid closed cabinets. The better the ventilation around your amplifier the cooler it will run.

HEAT OUTPUT

This is a Class A amplifier where the tubes idle at near full power at 47 miliamps each. It is designed to run at a temperature that humans would perceive as hot. The actual temperature of the power transformer and metal parts of the amplifier will depend on the following conditions:

- Ambient room temperature. At 70 degrees F. the amp should run at around 118 degrees.
- Volume level. The amp will generate less heat at lower volumes then at higher volumes.
- Amount of time the amplifier has been on. Depending on the two variables above it can take up to several hours to reach full temperature.

NOTE: in rooms with high ambient temperatures the SE84C could after many hours reach temperatures of 140 degrees, although it requires a worse case scenario to achieve that temperature. This is the maximum allowable temperature recommended for operation as anything higher could burn you.

If you turn your amp off when not in use and your listening room isn't baking hot, you'll find your SE84C to average a comfortable 115 degrees F. This is cool enough to keep your hand on the power transformer for extended periods of time.

You will find where heat is concerned, that after about 30 minutes or so once the amp has become warm, the sound will be better then when the amp is ice cold.

STEREO / MONAURAL OPERATION

To run the amplifier in Stereo, simply connect the left and right input jacks to your source or preamp and the left and right output binding posts to your speakers. If using the variable inputs, the volume control located at the front of the amplifier will control the output level of both channels at the same time.

To bridge the amplifier into a monoblock (single channel amp) all that is needed is a short piece of 14 AWG wire hooked between the Left negative (black) speaker binding post and the Right positive (red) speaker binding post on the other side of the amp. This leaves two binding posts left, one on each side of the amp, to drive your loudspeaker.

This is made possible by the SE84C floating output transformer design where the negative speaker binding posts are not tied or referenced to ground (chassis). When you hook your amp up as described, you have effectively wired the output transformer in series creating a single mono circuit that does not have the typical smearing associated with bridging stereo amplifiers.

To hook up the inputs of the amplifier in mono so that only once cable is needed from the preamp or source it is recommended that you use a Y-Cable that plugs into the left and right input jacks combining them into one. Decware can supply you with high quality Y-Cables made from the same Silver/Teflon conductors as our signature cables. Alternately space has been provided in the design to accommodate a stereo/mono switch for the input jacks should someone wish to custom order the amplifiers that way. We should mention that our Y-Cable gives the same sonic results as the switch, costs about the same and keeps you from having to ship your amplifier back to Decware for the modification. That is one of the reasons why a stereo/mono switch is not standard on the SE84C.

HOW TO OPERATE

After finding an appropriate place for the amplifier you can install the tubes and connect the speaker cables. Do not hook up the input cables at this time. Install the power cord and plug it into a grounded receptacle and turn the amplifier on.

Let the amplifier warm up for several minutes with the volume control all the way down. NOTE: it is common for new tubes to make an occasional spit or crackle upon startup. This goes away after the first couple uses.

Now that the amp is on and warmed up for a few minutes with no source or preamp connected to it, it is your chance to evaluate the noise level of the amplifier. What you hear coming from the speakers is your baseline reference for a given set of tubes. All tubes will vary somewhat. On all but the most efficient loudspeakers, you should hear almost nothing at a distance of less then 1 foot from the speaker. Decware amps are known for being quiet.

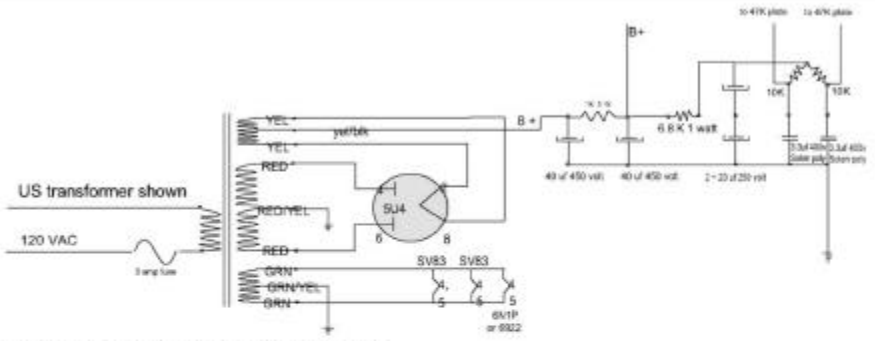
Next, turn the amplifier off and let it cool for 1 minute. Now hook up your source or preamp making sure to have the volume control all the way down and turn the amplifier back on. Raise the volume control to your desired listening level and enjoy!

BURN-IN PROCESS

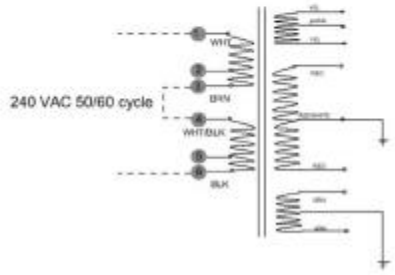
Expect less then wonderful sound for the first 20 to 40 hours of operation as the capacitors break-in. The fastest way to advance the burn in process is to play the amp for 5 hours and then turn it off for at least 5 hours. Repeat this at least 5 times. Most customers find that the amp really blooms in about the 3rd week of their evaluation.

SPECIFICATIONS

Weight	13 lbs. ea.
Dimensions	8.5" H x 7.250" W x 14.0" D
Circuit type	Single ended Class A Triode
Power output	2.3 watts RMS into 4 ohms
	5 watts RMS into 8 ohms when bridged
	NOTE: Power increases as ohms decrease
	Stable into 1 ohm speaker loads
Input voltage	2.0 volts for full output
Noise / Hum	Less than 1.5 millivolts (amazing for tube gear)
Response	20 Hz ~ 20 kHz
Feedback	ZERO negative feedback used
Rectification	5U4G tube rectification
Output tubes	SV83, 6P15P-EV, 6n15n-EB or EL84/6BQ5
Signal tube	6N1P or 6922 or 6Dj8
Transformers	All transformers are custom made for this amplifier by Decware
Biasing	Self-Biasing circuit - never needs adjustment
Resistors	All resistors are precision WW/MF by DALE, VISHAY
Signal Cap	Film and Foil
Filter Caps	All filter caps are US made SPRAGUE/ATOM
AC cord	Fused IEC connector provided with removable power cord
Consumption	65 watts at full power
Input jacks	RCA type 24K Gold / Teflon
Output jacks	Gold 5-way binding posts accept 8 gauge wire
Speaker dB/1w	89 dB minimum / 96 dB is ideal
Warranty	Lifetime to original owner / 90 days on tubes



NOTE: We recommend wiring the primary for 240 volts even if your voltage is 220 or 230. Use a 3 amp fuse.



For Japan 100 volt connect 1 to 4 and 2 to 5
Use 1,4 and 2,5 for line connection.

To test your amplifier after upgrading or assembly, connect speakers to the outputs and turn the input volume control all the way down. Install all the tubes and turn the unit on.

Your B+ voltage should be between 320 – 350 vdc. The bias voltage on your output tubes (pin 3) should be between 9.5 – 12 vdc when referenced to ground.

AC ripple can be measured on the outputs and should be less than 2 millivolts.

The outputs on this amp float with no reference to ground - do not connect the negative to ground or the chassis. If you do you won't be able to SERIES the outputs when bridging the amp for mono use.

This amp is built with a single point ground, located on one of power transformer mounting bolts. The silver litz wire is used to carry the ground buss for the entire circuit. Do not use the chassis for ground.

For safety, be sure to use the ground on your power cord, connecting it to the single ground point as everything else.

ZEN TRIODE STEREO AMPLIFIER

MODEL SE84C

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